

<b>Semester:</b>	3		
<b>Course Code:</b>	ENCM 21732		
<b>Course Name:</b>	Sustainable Utilization of Energy Resources		
<b>Credit Value:</b>	2		
<b>Status:</b>	Compulsory		
<b>Pre-requisite:</b>	ENCM 12752		
<b>Co-requisites</b>	None		
<b>Hourly Breakdown:</b>	Theory	Practical	Independent Learning
	25	15	60
<b>Intended Learning Outcomes:</b>			
<p>After completion of this course unit, the student will be able to;</p> <ol style="list-style-type: none"> <li>1. describe renewable and nonrenewable energy resources, extraction, conversion, and end-use technologies</li> <li>2. explain national and global energy consumption patterns and impacts of excessive energy consumption</li> <li>3. describe and apply strategies for sustainable utilization of energy of households and industries</li> <li>4. demonstrate skills on how to collaborate with peers in a team environment and apply diverse sets of ideas, values, beliefs, and views,</li> </ol>			
<b>Course Content:</b>			
<p>Different types of energies, units of energies, Classification of energy resources. Current and potential future energy systems: covering resources, extraction, conversion, and end-use technologies. Current and potential future energy systems, covering resources, extraction, conversion, and end-use technologies. Renewables; wind, solar, tidal, geothermal, hydro, nuclear, biogas, dendro, energy from waste. Energy conversion and end use: Thermodynamics, Energy conversion technologies and end uses. Consumption practices in different countries including Sri Lanka, Impacts of excessive energy consumption. Impacts of excessive energy consumption. National Energy policy. Energy Audits and Energy Management plans. Sustainable utilization of Energy: Energy management for households (Energy systems, improvement opportunities, and economics). Sustainable utilization of Energy: Energy management for Industries. (Energy systems, improvement opportunities including system modification, behavioral changes, and economics) (VSD motors, T5 lighting, Hybrid A/C, central A/C, censor light and daylight harvesting, capacitor banks).</p>			
<b>Teaching /Learning Methods:</b>			
<p>A combination of lectures, laboratory and field practical sessions, factory visits, computer based learning, self-studies, Supplementary Lecture Support Materials and reference materials, individual survey reports, case studies based assignments and small group discussions, tutorials.</p>			
<b>Assessment Strategy:</b> Continuous assessment and end of semester examination. Percentage given for each sub component indicates the percent contribution to the final marks.			
Continuous Assessment 30%		Final Assessment 70%	

Details:		Theory	Practical	Other
Assignments	20	70	-	-
Field report(s)	10			
<b>Recommended Readings:</b>				
<ol style="list-style-type: none"> <li>1. Energy conservation in the home (2014). Colorado State University, USA.</li> <li>2. Galarraga, I., G. Eguino &amp; M. Markandya (2013). A Handbook of Sustainable Energy. Edward Elgar publishing, UK.</li> <li>3. Röser, D., A. Asikainen., K. Raulund-Rasmussen &amp; I. Stupak (2008). Sustainable Use of Forest Biomass for Energy. Springer publishing, USA.</li> <li>4. Twidell, J. &amp; T. Weir (2003). Renewable Energy Resources. Taylor &amp; Francis, USA.</li> </ol>				